Speedy Salmon Stats: automating summaries of Sockeye Salmon escapement for Lake Clark National Park

Project Title	Speedy Salmon Stats: automating summaries of Sockeye Salmon escapement for Lake Clark National Park
Project Summary	Help the local communities, the National Park Superintendent and fisheries staff, and other stakeholders be better informed about the timing and abundance of the locally spawning sockeye salmon populations by simplifying and speeding up the data analysis processes through automation & Rmarkup.
Country	United States

Project Description

This project's primary objective is building a Rmarkup report template updating and visually displaying salmon escapement summaries, and associated uncertainties, for use by a variety of target audiences. The project will introduce the intern to specialized variance estimators for systematic samples, help develop their skills in R, Rmarkdown, tidy, ggplot2, and communication of statistical concepts to a variety of end users. There is potential for use of Rshiny.
The project focuses on speeding up information delivery regarding a key natural resource - sockeye salmon. Conservation of the populations spawning and rearing in Lake Clark National Park and Preserve was a major motivation for establishing the National Park.
The fish escapement data come from 'counting towers' situation below the Lake Clark outlet near the village of Nondalton, Alaska. The tower counting program has been in operation for over a decade, thus providing a rich opportunity for stepping back, revisiting the current sampling design, and considering various modifications to simplify the observation process while still meeting the Park's information needs. Time permitting, we will investigate some of these secondary research questions to improve the efficiency of the current sampling design and, thus, the relevant estimation scripts.
During the course of the internship, you will be introduced to the 'realities' of natural resource biometrics, the need to consider the impact of data collection design on the analysis processes, and develop skills in effective data visualization - both for analysis and for communication. Undoubtedly, you will also learn about natural resource management in Alaska, career paths in federal natural resource management, and the wonders of Lake Clark National Park and Preserve (and sockeye salmon!).

Required Skills or Interests

Skill(s)
Analytical writing
Coding
Data analysis
Data visualization
Design thinking
Editing and proofreading

Additional Information

Links for additional information:
Lake Clark National Park and Preserve - https://www.nps.gov/lacl/index.htm
Science in the Alaska Region of the NPS - https://www.nps.gov/subjects/aknatureandscience/science.htm
The Natural Resources Science Team - https://www.nps.gov/orgs/1349/whatwedo.htm
The Mentor - https://www.researchgate.net/profile/Joel_Reynolds

Language Requirements

None